Claims

1. Charging device (1) for charging of charging stock into a melting vessel, comprising

a shaft (2) having

shaft walls (4, 5, 6, 7) held in a frame structure (3),

a lower shaft floor (8),

an upper inlet opening (9) for charging stock,

a discharge opening (11) for charging stock in a side wall in the lower area of the shaft (2),

a pusher (13) having

a top surface (14), a bottom surface (15), an end surface (16) transverse to the pushing direction, and two lateral surfaces (17, 18) parallel to the pushing direction,

which pusher, resting with its bottom surface (15) on the top surface (19) of the said shaft floor (8), is movable by a first actuating device (20) between a first, retracted position, which exposes the shaft floor, and a second position, which is advanced toward said discharge opening (11), for the batch transport of charging stock present in the shaft (2) toward and out through said discharge opening (11),

characterized in that

the lateral surfaces (17, 18) of the pusher (13) converge from the top surface to the bottom surface (15) of the pusher (13), and

the first actuating device (20) is supported in the frame structure (3) so as to be pivotable about a horizontal axis.

2. Charging device according to Claim 1, characterized in that the upper boundary of the discharge opening (11) for charging stock is formed by a horizontal, rotatably supported roller.

3. Charging device according to Claim 2, characterized in that the roller (26) is supported so as to pivot about a horizontal axis (27).

4. Charging device according to Claim 2 or 3, characterized in that the roller (26) is downwardly pushable by a second actuating device (28).

5. Charging device according to one of Claims 2-4, characterized in that the roller (26) comprises engaging elements (30) distributed around its circumferential surface.

6. Charging device according to Claim 5, characterized in that the engaging elements (30) are formed as engaging ribs.

7. Charging device according to one of Claims 1-6, characterized in that the first and/or the second actuating device is formed as a linear drive.

8. Charging device according to one of Claims 1-7, characterized in that the interior space of the shaft (2) bounded by the shaft walls (4, 5, 6, 7) is rectangularly formed in horizontal cross section.

9. Charging device according to one of Claims 1-8, characterized in that, at the discharge opening (11) for the charging stock, a projection (33), surrounding the opening, is provided for connection to a charging opening (32) of a melting vessel (31).

10. Charging device according to Claim 9, characterized in that the projection is designed in the form of a sleeve (33), whose external contour is adapted to the internal contour of a charging opening (32) for insertion into the charging opening (32) of a melting vessel (31).

11. Charging device according to one of Claims 1-10, characterized in that it is portably designed.

12. Charging device according to Claim 11, characterized in that the frame structure (3) of the shaft (2) is displaceable by means of an undercarriage or on rollers (34).

13. Charging device, especially according to one of Claims 1-12, characterized in that mechanically stressed parts of the shaft (2) and/or pusher (13) are formed from sections (41) of steel billet, which are arranged adjacent to each other and are connected to each other to form a structural unit (40).

14. Charging device according to Claim 13, characterized in that the sections (41) of steel billet are welded together along the edges (42) on the thermally and/or mechanically stressed side of the structural unit (40) via interleaved sections (43) of steel rod.

15. Charging stock preheater comprising a charging device according to one of Claims 1-14, wherein the charging stock discharge opening (11) in a side wall in the lower area of the shaft forms a gas inlet for a heating gas for heating charging stock present in the shaft, the upper charging stock inlet opening (9) is closable by a cover (10), and a gas outlet (12) for the heating gas is provided in the upper area of the shaft (2).

16. Charging stock preheater according to Claim 15, characterized in that a spray water cooling device with spray nozzles directed towards thermally stressed sections of the side walls (4, 5, 6, 7) is installed in the frame structure (3).